CLAIMS

What is claimed is:

1. A chemical mechanical planarization apparatus, comprising:

a polishing pad platen adapted to hold and rotate a polishing pad; and

a slurry arm extending at least a radial distance over the polishing pad platen, the slurry arm adaptable to pivot over a pivoting axis, and having a nozzle adaptable to deposit one or more slurry solutions onto the polishing pad.

2. The apparatus of claim 1, wherein the slurry arm is adaptable to pivot about a point adjacent the polishing pad platen.

3. The apparatus of claim 1, wherein the length of the slurry arm is adapted to be sufficiently long to position the nozzle over a surface of the polishing pad, and adapted to position the nozzle at locations over the polishing pad surface along at least an arc across the polishing pad spanning from one perimeter edge to another perimeter edge of the polishing pad platen.

4. The apparatus of claim 1, wherein the nozzle comprises a plurality of slurry ports adaptable to provide different slurry solutions.

5. The apparatus of claim 4, wherein the different slurry solutions comprise at least a selected one of a chemical etchant, and another adapted to provide an abrasive slurry.

6. The apparatus of claim 1, wherein the nozzle comprises one or more slurry ports adaptable to provide one or more slurry solutions at one or more flow rates.

7. The apparatus of claim 1, wherein the slurry arm is controllable to concentrate a slurry solution on a target area of the polishing pad.

8. A method for substrate surface planarization, comprising:
holding and rotating a polishing pad;
holding and rotating a substrate complementary to the rotating polishing pad;
extending a slurry arm at least a radial distance over the polishing pad; and
pivoting the arm about a pivoting axis to deposit a slurry film onto the polishing pad.

9. The method of claim 8, further comprising adjusting a rotational velocity of the pivoting of the slurry arm to maintain a uniformity of the slurry film being deposited.

10. The method of claim 9, wherein said adjusting comprises adjusting the rotational velocity of the slurry arm with respect to a rotational velocity of the polishing pad.

11. The method of claim 10, wherein said adjusting further comprises adjusting the rotational velocity of the slurry arm with respect an anticipated radial position of the substrate.

12. The method of claim 9, wherein said adjusting comprises adjusting the rotational velocity of the slurry arm with respect an anticipated radial position of the substrate.

13. The method of claim 8, further comprising controlling one or more nozzles of the slurry arm to deposit one or more slurry solution onto the polishing pad, at one or more flow rates.

14. A chemical mechanical planarization (CMP) system, comprising:
a CMP arrangement having
a polishing pad platen adapted to hold and rotate a polishing pad, and
a slurry arm extending at least a radial distance over the polishing pad platen, the slurry arm being pivotable about a pivot axis, and having at least a nozzle to deposit at least one slurry solution onto the polishing pad; and
a control system coupled to the slurry arm, and adapted to control the slurry arm to pivot about the pivot axis and position the nozzle over the polishing pad, the control system in communication with a substrate holder adapted to hold a substrate to be planarized by the polishing pad, for coordinated engagement with the polishing pad in view of the substrate holder.

15. The system of claim 14, wherein the control system is adapted to control the slurry arm to pivot about a point adjacent the polishing pad platen.

16. The system of claim 14, wherein the control system is adapted to control different slurry ports of the nozzle to provide one or more slurry solutions at one or more flow rates.

17. The system of claim 16, wherein the control system is adapted to control the different slurry ports of the nozzle to provide different slurry solutions at different flow rates.

18. The system of claim 14, wherein the control system is adapted to control the slurry arm to concentrate a slurry solution on a target area of the polishing pad.